

## Solid Waste Issues in Pacific ACP Countries

Rapid growth in both urbanisation and population contributes to solid waste management problems in all eight Pacific ACP countries. Table 1 provides data on both population growth rates and densities illustrating the extent of these problems and the wide variation in these countries.

**Table 1: Geographic Data on Pacific ACP States**

Country	Land Area (km <sup>2</sup> )	Population	Annual Growth Rate of Population (%)	Population Density (Persons/km <sup>2</sup> )	Urban Population (% of total)
Fiji	18,333	772,655	0.8	43	46
Kiribati	811	77,658	1.4	103	37
Papua New Guinea	462,243	3,607,954	2.3	9	15
Samoa	2,935	161,298	0.5	58	21
Solomon Islands	28,370	285,176	3.4	16	13
Tonga	747	97,446	0.3	131	36
Tuvalu	26	9,043	1.7	419	42
Vanuatu	12,190	142,419	2.8	15	18

Source: SPC. (1998 Revised Edition). *Pacific Island Populations*. Noumea, SPC

Much solid waste is generated because of rapid urbanisation, an equally rapid rise in 'standard of living' expectations and the related demand for imported canned, plastic-wrapped, or bottled goods. With limited land areas around many urban centres, and with local reefs, lagoons or inshore fisheries particularly vulnerable to pollution, all the Pacific ACP countries have serious disposal problems, few disposal sites being acceptable socially, economically, or from the viewpoint of human health.

In most of the municipalities, the search for environmentally safe and socially acceptable sites for solid waste disposal has become a perennial concern which is for several towns at least, seemingly insoluble. In smaller settlements, and coastal peri-urban situations, mangrove areas or beaches have become the casual dumping grounds for much of the waste, ranging from derelict cars to household refuse. Expected further urbanisation and industrialisation will make these problems even worse.

In terms of solid waste characterisation, the overall situation can be summed up as "one cannot manage what one cannot measure". In this context, all the programme countries recognised waste characterisation studies as very important because a reliable baseline data is a prerequisite to setting realistic targets for waste reduction, reuse and recycling. Furthermore, data generated by waste characterisation studies can be used to raise awareness of decision-makers and legislators and will be useful for making recommendations on further activities in the areas of waste treatment and legislation. On the basis of the locally available data one can conclude that domestic solid waste generation is of the order of 0.3-0.7kg/capita/day. Organic/biodegradable material generally makes up about 50% of this. Other important components of the solid waste stream include plastics, glass, metals, paper, batteries, white metal goods, and pesticide containers.

Population growth, industrialisation, urbanisation and a move towards increasingly consumeristic lifestyles will maintain the growth in waste outputs in the programme

countries for the foreseeable future. Consequently, waste management is expected to become an increasingly critical environmental challenge in all the countries. Regionally implemented waste management programmes, such as the European Union (EU) funded Pacific Regional Waste Education and Awareness Programme (WASTE), are taking the first steps to meet this challenge.

Current institutional arrangements in regard to the government structure and management of the environment are summarised in Table 2.

**Table 2: Institutional arrangements at a national level**

<b>Pacific ACP State</b>	<b>Description</b>
Fiji	Environmental matters, including waste, dealt with by the Department of Environment, Ministry of Housing, Urban Development and Environment.
Kiribati	Environment Unit, Ministry of Environment and Social Development. Siting of rubbish dumps falls under the jurisdiction of the Ministry of Home Affairs and Rural Development.
Papua New Guinea	Department of Environment and Conservation.
Samoa	Division of Environment and Conservation within the Department of Lands, Surveys and Environment.
Solomon Islands	Division of Environment and Conservation, Ministry of Forests, Environment and Conservation. DEC is guided by the priorities identified in NEMS and by its recently passed Environment Act.
Tonga	Environmental administration is vested with the Ministry of Lands, Surveys and Natural Resources within which government policies are implemented by an Environmental Planning Section. Legal power for waste issues is with the Ministry of Health.
Tuvalu	Ministry of Lands and Natural Resources.
Vanuatu	Environmental issues are coordinated by the Environment Unit, Ministry of Lands and Natural Resources.

Legislation dealing with environmental protection has been drafted in several countries (Fiji, Kiribati, Papua New Guinea, Samoa, Solomon Islands and Vanuatu). Of these, only the legislation in the Solomon Islands, called The Environment Bill 1998, has been enacted by the National Parliament. In some cases the legislation has incorporated procedures for environmental impact assessment (EIA), but care has been taken not to make these too demanding of slender administrative and technical resources. The implementation of this legislation is the next step in the process of legal reform.

Table 3 presents a summary of the national legislation dealing with solid waste management issues in Pacific ACP Countries.

**Table 3: Legislation dealing with solid waste issues**

Pacific ACP State	Summary of Legislation
Fiji	<p>The Litter Decree 1991 covers aspects such as litter prevention, offences and procedures for prosecuting alleged offenders. The Decree enabled public and other authorities to appoint litter prevention officers and made it an offence to litter or break bottles and glass in public places.</p> <p>The Fijian authorities have included a comprehensive section on waste minimisation and management in its draft Sustainable Development Bill which is currently being considered by Cabinet. It is expected that the Bill will be approved by mid-1999.</p>
Kiribati	<p>The Local Government Act 1984 empowers Local Council to make provision for sanitary services dealing with rubbish and the prohibition of acts detrimental to the sanitary condition of the area.</p> <p>Under the Public Health Regulations:</p> <ul style="list-style-type: none"> <li>* it is an offence to deposit a receptacle at any public place or allow receptacles to remain upon any premises;</li> <li>* all premises and land must be kept clean;</li> <li>* rubbish must be burnt if possible, and if not, put in bins ready for daily collection.</li> </ul> <p>The Public Highways Protection Act 1989 prohibits the depositing of litter or rubbish on the public highway. A conviction could lead to a fine of \$200 and three months imprisonment.</p> <p>The Asian Development Bank assisted the Environment Unit in drafting its Environment Protection and Conservation Act in 1996. Part IV of the proposed Act deals with waste management and pollution issues. The draft legislation is still being considered by the Attorney General's Office.</p>
Papua New Guinea	<p><b>1. The Environmental Planning Act (EPA), Chapter 370, 1978</b> The EPA provides for an environmental impact assessment of major development projects. It is used as an instrument to monitor and control developments. Any sanitary landfills proposed will have to satisfy the requirements of this Act.</p> <p><b>2. The Environmental Contaminants Act (ECA), Chapter 368, 1978</b> The ECA provides the regulatory mechanism for regulating the importation, distribution, use and discharge of contaminants into the environment. It has provisions for regulating littering, breaking of glass, and general regulation of discharges from waste dumps into the environment. It is an instrument for prevention, abatement and control of contamination and protection of the environment.</p> <p><b>3. The Water Resources Act (WRA), Chapter 205, 1982</b> This Act deals with the protection of natural water resources and its management. It provides the regulatory mechanism for controlling discharges of contaminants into natural water systems.</p> <p><b>4. The Public Health Act (PHA)</b> This Act provides the mechanism for regulating and controlling domestic refuse, the establishment of refuse point, and covers health, sanitation, cleaning, scavenging and disposal of waste.</p> <p><b>5. The Amended Organic Law on Provincial Government, 1995.</b> This Act provides the mechanism and gives powers to Local Governments to set up by-laws to cover municipal waste management.</p>

Pacific ACP	Summary of Legislation
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<b>State</b>	
<b>Samoa</b>	<p>Provisions for the control of solid wastes are contained in Division 8 of Part VIII of the Lands, Survey and Environment Act 1989 under the title “Control of Litter”. The relevant provisions can be summarised as follows:</p> <ol style="list-style-type: none"> <li>For the designation of disposal sites, the Minister of Lands, Survey and Environment has the authority to designate Government or State land as the disposal site by notification in the Gazette;</li> <li>It is an offence to litter on public or private land without the permission of the owner: offenders can be ordered to clean up or face instant fines of \$10.00 or Court fines (upon prosecution and conviction) of up to \$500 (individuals) and \$5,000 (companies);</li> <li>Administrators or owners of public places are required to provide rubbish bins and arrange for their regular and efficient emptying; The enforcement of the law can be carried out by Conservation Officers.</li> <li>The Department of Lands, Survey and Environment can enter into contracts to fulfill its requirements for solid waste management.</li> </ol> <p>In late 1996 the Department of Lands, Survey and Environment coordinated the drafting of the National Waste Management Policy for the Government of Western Samoa. This is a comprehensive document that covers issues such as individual and collective responsibility, sustainability, environmental protection and public health, waste minimisation, and economic development. This policy is still being considered by the Government.</p>
<b>Solomon Islands</b>	<p><b>The Public Health Act (PHA) 1980 &amp; The Public Health Regulation 1980</b> This Act provides the mechanism for regulating and controlling domestic refuse, the establishment of refuse point, and covers health, sanitation, cleaning, scavenging and disposal of waste.</p> <p><b>The Environment Bill 1998 &amp; The Environment Act 1998</b> The Environment Bill 1998 was enacted by the National Parliament of the Solomon Islands on 20 October 1998. The resulting Act makes provision for the protection and conservation of the environment, the establishment of the Environment and Conservation Division and the Environment Advisory Committee.</p> <p>Section 3 (c) of the Bill specifically deals with solid waste issues.</p>
<b>Tonga</b>	<p>The Town Regulations (Amendment) Act of 1974 (5/74) makes it illegal to litter on any government roads, public places, beaches and properties of other persons. Under this Act offenders could be fined up to \$T50 and/or imprisoned up to six months and could also be required to pay compensation of up to \$T50 to any person injured as a result of the littering.</p> <p>Other legislation dealing with the management of solid waste in Tonga includes the following:</p> <ul style="list-style-type: none"> <li>◆ The Garbage Act, (Act 11 of 1949, 14 of 1962, 27 of 1977, 8 of 1980);</li> <li>◆ The Public Health Act, (Part VI of Act 29 of 1992);</li> <li>◆ The Refuse Dumping Ground Regulations of the Public Health Act, (Section 4 of 1936);</li> <li>◆ The Mosquito Control Regulations, 1938 (G25/38, Section 3).</li> </ul>

<b>Pacific ACP State</b>	<b>Summary of Legislation</b>
<b>Tuvalu</b>	Under the Public Health Act and Regulation (1926), all premises and land must be kept clean. Rubbish must be burnt if possible, and if not, put in bins

	<p>ready for collection.</p> <p>The Marine Pollution Act 1991 regulates the dumping of pollutants and waste into the marine environment.</p> <p>According to the Tuvalu National Environment Management Strategy, appropriate legislation covering waste minimisation and the disposal of waste from land, and on land, need to be developed. Furthermore, the selection of tipping sites is unplanned and unregulated. Furthermore, consideration should be given to regulating the reclamation of borrow pits by the dumping of waste.</p>
<b>Vanuatu</b>	<p>Public Health Act - includes controls on the disposal of waste in public places and controls on litter;</p> <p>Environment Act (draft law in preparation) - scope will include solid waste issues;</p> <p>Water Resources Act - Covers ground and surface water resources, including provisions to control pollution and protect water catchments.</p>

It is evident from Table 3 that as regards waste management, no country has specific legislation dealing with this issue yet. They often rely on outdated unspecified legislation such as Public Health Acts or Anti Litter Decrees. This can be supported by EIA legislation that requires new industries to consider waste issues, hopefully leading to good management and preferably to on-site treatment facilities. Some environmental licensing does occur, but like all other aspects of environmental legislation, unless enforcement is carried through and regular checks that license conditions are being maintained, the legislation is ineffective. In general, enforcement of legislation is poor as a result of staffing constraints, lack of proper training for staff, the level of fines is ridiculously low because the legislation has not been regularly updated, and cultural issues. Another important issue is that there is a lack of awareness of regulations amongst personnel who are supposed to enforce them (such as health inspectors, police officers) as well as the general public who is supposed to abide by the regulations.

Like other regions, the Pacific faces the “implementation gap”. This means that the policies which are on paper or in the statute may not be implemented in a consistent way and may, in the worst cases, be completely bypassed. Not surprisingly, this arises when the pressure to reap an economic benefit by rapid resource extraction is too great and when governments are reluctant to slow down a project by sticking to the letter of environmental regulation.

Financing a weak point in waste management operations in all Pacific ACP States. No sustainable funding plans have been developed or are in place. Many waste operations are severely under-funded, and as they are national government programs, the operators have to make do with the resources provided, even though this leads to significant environmental problems. In addition, there seems to be a reluctance to move to commercialising waste activities and few realistic ideas have been tested in raising revenues.

There are a number of ways in which waste operations can be funded. The operations could be privatised and “user pay” principles introduced. Other potential sources of funding include realistic waste collection fees, fees to dump materials in landfills, revenues from sale of recyclable materials, sale of compost, and the imposition of

appropriate tariffs to items that are likely to create waste management problems such as vehicles, disposable nappies, plastic bottles, etc. During its implementation phase, WASTE will examine these options to assess whether or not they are realistic for the Pacific ACP Countries. In this regard, an assessment of available options, including discussions with relevant stakeholders such as Government Departments, NGO, etc. would help to develop waste management plans and policy recommendations.

The institutional and financial constraints mean that waste management plans when implemented are not sustainable. There is evidence of substandard solid waste disposal systems in the Pacific that were based on appropriate technical plans and funded with appropriate facilities and equipment, but that have fallen into disrepair or under-use because maintenance funds are not available even when the technical ability to maintain systems is available. This usually means a new funding initiative by some donor agency to rehabilitate or renew the system. The cycle continues when the new system provided by the funds has not been given financial and institutional sustainability.

Waste management, like many other multisectoral issues, is generally poorly handled in all programme countries. For example, the siting of rubbish dumps in Kiribati is under the jurisdiction of the Ministry of Home Affairs and Rural Development which has no technical expertise in any aspect of landfill management, but has control through the Foreshore Act of 1977. It is vital that Governments determine a clear allocation of responsibility through good national level planning. One mechanism for dealing with this is to develop an integrated waste management policy, and following that, an implementation strategy. Without such an integrated approach, new initiatives in waste management may not have long-term success. This issue will be emphasised to Governments and other stakeholders throughout the implementation phase of WASTE. It will also be included in recommendations developed from the programme.

Successful waste management ultimately depends on long term commitment of authorities and community to the principle of natural resource sustainability. This requires an attitudinal change that recognises waste management as necessary and important because waste is

- a threat to sustainability and lifestyle of Pacific communities;
- a resource that can be applied to sustainable food production;
- a continuing sustainable supplement for energy needs in the future.

As regards policy options for the future, the reversal of present trends call for a concentrated effort to build capacity across the region, backed by a menu of policy options that will reduce the volume of non-biodegradable material in the waste streams entering the region. Attention also needs to be given to new and unfamiliar forms of waste, such as packaging material which is hard to dispose of, or the by-products of new technology.

The three Rs of waste management -- reduce, reuse and recycle – cannot be fully applied in the circumstances of most Pacific ACP countries. The size of the market is too small to impose special packaging requirements on a distant exporter, and this also affects the economic opportunities for recovering waste materials or recycling them. The region is thus at the end of the line for many waste streams generated in

manufacturing countries and special measures (e.g. surcharges, taxes or deposits) may be justified for plastics, cans and bottles. Such instruments are fully in line with the Polluter Pays Principle. The funding thus obtained could be used in part to ensure that these materials can be sorted and backloaded at reduced rates to destinations where recycling can be carried out. Furthermore the reversal of present trends of increasing non-biodegradable wastes entering the region, calls for a concentrated effort to build capacity across the region, backed by a menu of policy options that can facilitate a reduction in these waste streams. Some of these policy options, such as the introduction of clean technologies, will be explored during the implementation of WASTE. Furthermore, WASTE will also undertake activities to assist in the strengthening of the capabilities of the target groups (such as community based organisations, urban dwellers, etc) in identifying and redressing their purchasing behaviours, and avoiding the importation of high waste or non-biodegradable products.

There are other areas where a “clean Pacific” policy may be justified, given the limited space for waste disposal facilities in many islands and the huge exposure of coastal regions to intractable waste, such as polystyrene and plastic bags. It is here that the link is most obvious with the need for clean water and food security. Public education and awareness needs to be built up to highlight the linkages and to encourage waste prevention, source segregation and the three Rs of waste management. It is in this context that WASTE would be an effective initiative because it aims to concentrate on educating the general public of the environmental and economic damages from existing solid waste generation and disposal habits. It will also highlight that current solid waste disposal practices in the region are environmentally detrimental to the land and ocean waters of the region; a danger to human health; and damaging to the economies of the countries. It will educate and motivate the general public to properly manage waste materials which otherwise contribute towards both land and water pollution. Furthermore, it will educate a wide range of stakeholders such as community based organisations (churches, schools, youth and women’s groups), local councils, provincial and national governments, NGOs, training institutions, etc. on the environmental, health, and economic damage caused by poor waste management and motivate them to support and participate in waste reduce, reuse, recycle programs.

It is also important to emphasise that that creating awareness of the solid waste issue amongst the general population will also increase pressure on municipal authorities and governments to improve waste management policies and practices. However, the programme will also focus on decision-makers regarding the need to introduce better legislation and enhance their enforcement to facilitate better waste minimisation and management practices.

## **Conclusions**

All Pacific ACP countries face critical problems with regard to waste management. These problems have many common themes, including: insufficient government priority and political support for action; lack of finance; lack of long-term planning; poor landfill siting, design, planning and management; lack of skilled personnel; lack of awareness of the problems caused by poor waste management; insufficient recycling and reuse; organic waste not fully utilised; etc. If not properly addressed,

these problems will result in increasing environmental and health problems in the region as well as having serious consequences for economic development.

It is recognised that education and awareness initiatives highlighting linkages between poor waste management practices and threats to health, environment and the economy is a strategy that can be used to address the issue. It is in this context that WASTE is an important programme for the Pacific ACP countries. This EU funded and SPREP implemented programme will initiate national and regional initiatives to educate and assist key stakeholders in the Pacific ACP States to offer practical solutions of litter and solid waste disposal, to encourage participation of the community, to raise general awareness, to encourage good citizenship concerning waste minimisation and management, and to emphasise the three Rs of waste management. The importance of WASTE is recognised by key stakeholders in all eight programme countries who were consulted by the Project Coordinator, and this ensures strong support for and commitment to the programme.

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